

What is claimed is:

1. An image display apparatus, comprising:

a condensing optical system for changing illumination light from a light source to converging light;

a color separation optical system having a color separation optical member for reflecting a color light component in a specific wavelength range of said converging light and transmitting color light components in the other wavelength ranges;

a plurality of image display devices illuminated by a plurality of color light components separated by said color separation optical system, respectively,

a color combination optical system for combining image light components of a plurality of colors emanating from said plurality of image display devices; and

a projection optical system for projecting image light components combined by said color combination optical system on a surface on which projection is performed,

wherein an optical axis of light incident on said color separation optical member forms an angle smaller than 45 degrees with a normal to a light incident surface of said color separation optical member.

2. The image display apparatus according to claim 1,

wherein said condensing optical system has:

an illumination reflecting member for turning an optical axis of illumination light from said light source substantially 90 degrees; and

a condensing optical element for exerting a converging effect on light reflected by said illumination reflecting member to cause the converging light to impinge on said color separation optical system,

and wherein an optical axis of illumination light from said light source to said illumination reflecting member is inclined toward an optical axis of said projection optical system with respect to the optical axis of said projection optical system.

3. The image display apparatus according to claim 1, comprising, as said color separation optical member, a plurality of color separation optical members for reflecting color light components in specific wavelength ranges different from one another,

wherein, in each of said plurality of color separation optical members, an optical axis of incident light forms an angle smaller than 45 degrees with said normal to said light incident surface.

4. The image display apparatus according to claim 1,

further comprising a plurality of light guide reflecting members for guiding a plurality of color light components separated by said color separation optical member to said plurality of image display devices, respectively,

wherein an optical axis of color light incident on said each light guide reflecting member forms an angle smaller than 45 degrees with a normal to a reflecting surface of said each light guide reflecting member.

5. The image display apparatus according to claim 1, further comprising a relay optical system disposed in an optical path with a length larger than the lengths of the other optical paths of a plurality of optical paths of color light components from said light source to said plurality of image display devices,

wherein said relay optical system includes a reflecting member having a concave-shaped reflecting surface.

6. The image display apparatus according to claim 5, wherein an angle which an optical axis of light incident on said reflecting member forms with a normal to said reflecting surface passing through an intersection of said optical axis and the reflecting surface of said reflecting member is smaller than 45 degrees.

7. The image display apparatus according to claim 5, wherein an angle which an optical axis of light incident on said reflecting member forms with a normal to said reflecting surface passing through an intersection of said optical axis and the reflecting surface of said reflecting member is smaller than an angle which an optical axis of light incident on said color separation optical member forms with a normal to a light incident surface of said color separation optical member.

8. The image display apparatus according to claim 1, further comprising:

an outer box for housing said condensing optical system, said color separation optical system, said plurality of image display devices, said color combination optical system and said projection optical system,

wherein a wall surface closest to said condensing optical system and said color separation optical member of wall surfaces substantially perpendicular to an optical axis direction of said projection optical system in said outer box extends along a portion, which is farthest from said projection optical system, of the outer periphery of converging light incident on said color separation optical member from said condensing optical system.

9. The image display apparatus according to claim 1, wherein a direction of a portion, which is farthest from said projection optical system, of the outer periphery of converging light incident on said color separation optical member from said condensing optical system is substantially perpendicular to an optical axis direction of said projection optical system.

10. An image display apparatus, comprising:

- a condensing optical system for changing illumination light from a light source to converging light;

- a color separation optical system having a color separation optical member for reflecting a color light component in a specific wavelength range of said converging light and transmitting color light components in the other wavelength ranges;

- a plurality of image display devices illuminated by a plurality of color light components separated by said color separation optical system, respectively;

- a color combination optical system for combining image light components of a plurality of colors emanating from said plurality of image display devices;

- a projection optical system for projecting image light components combined by said color combination optical

system on a surface on which projection is performed; and

an outer box for housing said condensing optical system, said color separation optical system, said plurality of image display devices, said color combination optical system and said projection optical system,

wherein a wall surface closest to said condensing optical system and said color separation optical member of wall surfaces substantially perpendicular to an optical axis direction of said projection optical system in said outer box extends along a portion, which is farthest from said projection optical system, of the outer periphery of converging light incident on said color separation optical member from said condensing optical system.

11. An image display apparatus, comprising:

a condensing optical system for changing illumination light from a light source to converging light;

a color separation optical system having a color separation optical member for reflecting a color light component in a specific wavelength range of said converging light and transmitting color light components in the other wavelength ranges;

a plurality of image display devices illuminated by a plurality of color light components separated by said color separation optical system, respectively;

a color combination optical system for combining image light components of a plurality of colors emanating from said plurality of image display devices; and

a projection optical system for projecting image light components combined by said color combination optical system on a surface on which projection is performed,

wherein a direction of a portion, which is farthest from said projection optical system, of the outer periphery of converging light incident on said color separation optical member from said condensing optical system is substantially perpendicular to an optical axis direction of said projection optical system.